INTERNATIONAL TRANSLATION CENTER, INC.

ITC

DECLARATION OF TRANSLATOR

I, Lawrence B. Hanlon, of the International Translation Center, Inc., do hereby avow and declare that I am conversant with the English and German languages and am a competent translator of German into English. I declare further that to the best of my knowledge and belief the following is a true and correct translation prepared and reviewed by me of the document in the German language attached hereto.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of any patent issued thereon.

Lawrence B. Hanlon

Date: 04/06/2005

6515/PCT

CONTACT SCREW

The present invention relates to a contact screw for conductive cores of a shielded cable, in particular the data transmission cores of a flat cable having a plurality of conductive cores, such screw being provided to be moved axially by means of threading in a connection device and having a shank with screw threading and a contact tip, the section of the contact tip provided for penetration of the cable insulation being provided with a coating of insulating material.

The problem, particularly in the case of flat cables that have energy transmission and data transmission cores, lies in piercing the data conductor in the shielded cable without the screw coming in contact with the shield (electrically conductive material), while in the process achieving good contact resistance between the end of the contact tip and the conductor and retaining high dielectric strength between shield and conductor.

In the past this object has been attained by means of a contact screw with an end casing of hard insulating material which extends through the cable jacket, the shield, and the core insulation when the conductor is pierced. One

disadvantage of this solution is that the force of penetration is transmitted to the insulating material and the shield is drawn toward the conductor, something which disadvantageously reduces the distance between shield and conductor.

The object of this invention is to eliminate the disadvantages indicated in the foregoing of a contact screw as defined above.

It is claimed for the invention that this object has been attained for a contact screw of the type indicated by means of the features specified in the characterizing part of claim 1.

In comparison with the state of the art, a higher dielectric strength between shield and conductor is achieved and the force of penetration of the metal component of the screw is transmitted by the metal component rather than by the insulating material. This solution also makes it possible to achieve a larger contact surface between screw (tip end) and conductor.

Especially advantageous embodiments of the object of the invention are specified in the dependent claims.

The invention is described in somewhat greater detail in what follows with reference to the drawing, in which

FIG. 1 presents a side view of the contact tip end of a contact screw claimed for the invention;

FIG. 2 is a view similar to that of FIG. 1 with insulating casing mounted;

FIGS. 3 and 4 are diagrams of the mode of operation of contact screws.

The drawing (FIGS. 1 and 2) shows the lower part of a contact screw of metal with shank 1 and contact tip 2 with mushroom-shaped end 2'. A screw threading 3 of predetermined pitch (for example 0.7) is provided on the shank 1. The screw may be moved axially by way of the screw threading 3 in a tapped hole of a connecting device (not shown).

A casing 4 of insulating material is mounted in the section of screw between the end of the shank and the end of the contact tip 2. The casing 4 tapers, as does the contact tip 2, to the conical end 2', being positioned between the shoulders 1' of the end of the shank and 2" of the mushroom-shaped end 2'.

A threading 5, a double helix if desired, the pitch of which is greater than that of the screw threading 3 (for example 1.2 mm as opposed to 0.7 mm) is provided on the outer surface of the casing 4.

Since the screw threading 3 determines the movement of the screw, relative movement results in the area of the threading 5 of the casing 4 which draws the insulation of the conductor upward (that is, away from the conductor) and so increases the distance between shield and conductor when the contact screw is screwed in.

The pressure between the flanks of the contact tip 2 of the screw and the insulating material of the cable is increased and accordingly the electric strength is further improved by the tapered shape of the insulating casing 4.

The mushroom-like shape of the end 2' of the contact tip 2 protects the insulating casing 4, as a result of which the force of penetration is now transmitted by the metal component rather than by the insulating casing.

FIG. 3 of the drawing presents a purely diagrammatic view of a contact screw of the state of the art. It is clearly to be seen that the shield 10 is pressed closer to the conductor 20 at the point of penetration.

FIG. 4 illustrates the solution claimed for the invention. It is clearly to be seen how on the insulated casing 4 both the insulation and the shield 10 are at the point of penetration moved away from the conductor 20 because the exterior threading 5 is of a pitch greater than that of the screw threading 3.